

WHAT IS CLAIMED IS:

1. Black magnetic iron oxide particles having a three-phase structure comprising:

a core portion containing at least one metal element other than Fe selected from the group consisting of Mn, Zn, Cu, Ni, Cr, Cd, Sn, Mg, Ti, Ca and Al in an amount of 0.1 to 10% by weight based on whole Fe contained in the particles;

a surface coat portion containing at least one metal element other than Fe selected from the group consisting of Mn, Zn, Cu, Ni, Cr, Cd, Sn, Mg, Ti, Ca and Al in an amount of 0.1 to 10% by weight based on whole Fe contained in the particles; and

an intermediate layer disposed between the core portion and the surface coat portion, containing substantially none of the metal elements other than Fe,

and having an average particle diameter of 0.05 to 1.0  $\mu\text{m}$ .

2. Black magnetic iron oxide particles according to claim 1, wherein the total content of the metal element other than Fe in the particles is usually 0.1 to 20% by weight, calculated as the metal element, based on the total weight of the particles.

3. Black magnetic iron oxide particles according to

claim 1, wherein a total content of FeO in the particles is usually 16.0 to 28.0% by weight based on the total weight of the particles.

4. Black magnetic iron oxide particles according to claim 1, which have an  $a^*$  value of not more than 1.0.

5. Black magnetic iron oxide particles according to claim 1, wherein a silicon compound is present in the intermediate layer, the surface coat portion, or the intermediate layer and the surface coat portion of the black magnetic iron oxide particles.

6. Black magnetic iron oxide particles according to claim 1, further comprising a coating comprising an organic compound having a hydrophobic group disposed on the surface of the black magnetic iron oxide particles.

7. Black magnetic iron oxide particles according to claim 6, wherein the amount of the organic compound having a hydrophobic group is 0.5 to 5 parts by weight based on 100 parts by weight of the black magnetic iron oxide particles.

8. Black magnetic iron oxide particles according to claim 1, further comprising a coating comprising at least one compound selected from the group consisting of

hydroxides of aluminum, oxides of aluminum, hydroxides of silicon and oxides of silicon disposed on the surface of the black magnetic iron oxide particles.

9. Black magnetic iron oxide particles according to claim 8, wherein the amount of the compound is 0.01 to 0.5% by weight, calculated as Al,  $\text{SiO}_2$ , or Al and  $\text{SiO}_2$ , based on the weight of the black magnetic iron oxide particles.

10. Black magnetic iron oxide particles according to claim 1, further comprising adhered fine oxide particles containing an element selected from the group consisting of Al, Si, Zr and Ti disposed on the surface of the black magnetic iron oxide particles.

11. Black magnetic iron oxide particles according to claim 10, wherein the amount of the fine oxide particles adhered is 0.1 to 5% by weight based on the weight of the black magnetic iron oxide particles.

12. Black magnetic iron oxide particles according to claim 10, further comprising a coating comprising fine oxide particles coated with at least one compound selected from the group consisting of methylsilane, trimethylsilane and octylsilane disposed on the surface of the black magnetic

iron oxide particles.

13. Black magnetic iron oxide particles according to claim 12, wherein the amount of the fine oxide particles adhered is 0.1 to 5% by weight based on the weight of the black magnetic iron oxide particles.

14. A magnetic toner comprising the black magnetic iron oxide particles as defined in claim 1, and a binder resin.

15. A black color pigment comprising the black magnetic iron oxide particles as defined in claim 1.

16. Black magnetic iron oxide particles having a three-phase structure comprising:

a core portion containing at least one metal element other than Fe selected from the group consisting of Mn, Zn, Cu, Ni, Cr, Cd, Sn, Mg, Ti, Ca and Al in an amount of 0.1 to 10% by weight based on whole Fe contained in the particles;

a surface coat portion containing at least one metal element other than Fe selected from the group consisting of Mn, Zn, Cu, Ni, Cr, Cd, Sn, Mg, Ti, Ca and Al in an amount of 0.1 to 10% by weight based on whole Fe contained in the particles; and

an intermediate layer disposed between the core

portion and the surface coat portion, containing substantially none of the metal elements other than Fe,

wherein the content of the metal element other than Fe is usually 0.1 to 20% by weight, calculated as the metal element, based on the total weight of the particles,

and having an average particle diameter of 0.05 to 1.0  $\mu\text{m}$  and a total content of FeO in the particles of 16.0 to 28.0% by weight based on the total weight of the particles.

17. Black magnetic iron oxide particles having a three-phase structure comprising:

a core portion containing at least one metal element other than Fe selected from the group consisting of Mn, Zn, Cu, Ni, Cr, Cd, Sn, Mg, Ti, Ca and Al in an amount of 0.1 to 10% by weight based on whole Fe contained in the particles;

a surface coat portion containing at least one metal element other than Fe selected from the group consisting of Mn, Zn, Cu, Ni, Cr, Cd, Sn, Mg, Ti, Ca and Al in an amount of 0.1 to 10% by weight based on whole Fe contained in the particles; and

an intermediate layer disposed between the core portion and the surface coat portion, containing substantially none of the metal elements other than Fe,

wherein a silicon compound is present in the intermediate layer, the surface coat portion, or the intermediate layer and the surface coat portion of the black

magnetic iron oxide particles,

and having an average particle diameter of 0.05 to 1.0

$\mu\text{m}$ .

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